

Remarks/Arguments:

Claims 3, 6, 7, 9, 11-13, and 27 stand rejected.

Claim 3 is objected to because the “polyester” is listed twice. Claim 3 is herein amended. Claims 3, 6, 7, 11-13, and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 2,942,327 to Corry, in view of GB 1,374,223 to Schnabel. Claim 9 stands rejected under 35 U.S.C. 103(a) as being unpatentable over Corry, in view of Schnabel, and further in view of U.S. Patent No. 4,996,100 to Druckman et al.

Applicants appreciate the courtesies extended to Applicant’s counsel during a telephone interview on July 24, 2007. The substance of that interview is as follows:

- 1) The interviews did not include any exhibits or demonstrations.
- 2) New Claim 27 was discussed in particular.
- 3) The prior art referred to included U.S. Patent No. 2,942,327 to Corry and GB 1,374,223 to Schnabel.
- 4) While Applicant’s counsel and the examiners discussed the distinction between Schnabel and Applicants’ claimed invention, no specific amendments were proposed.
- 5) The Schnabel reference describes a structure that is formed by heating a web of fabric comprising reinforcing material coated with synthetic material until the synthetic material passes into a thermoplastic state, thus embedding the reinforcing material into a singular dense sheet.
- 6) No other pertinent matters were discussed.
- 7) Applicant would file a Reply commensurate with the interview.

I. Law with Respect to the Question of Obviousness.

The guidelines for the analysis of the obviousness question begin with 35 U.S.C. § 103 which states that a patent claim is obvious, and thus invalid, when the differences in the claimed subject matter and prior art “are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art.” The obviousness analysis is based on several underlying issues of facts, namely: (1) the scope and content of the prior art; (2) the level and skill of a person of ordinary skill in the art; (3) differences between the claimed invention and the teachings of the prior art; and (4) the extent of any objective indicia of nonobviousness. Graham v. John Deere Company, 383 U.S. 1, 17-18, 86 S.Ct. 684, 15 L.Ed. 2d 545 (1966).

When obviousness is based on the teaching of multiple prior art references, the movant (Examiner) must also establish some reason, referred to as a suggestion, teaching, or motivation (TSM) that would have led a person of ordinary skill in the art to combine the relevant prior art teachings in the manner claimed. Tech Air, Inc. v. Denso Manufacturing Mfg. Mich. Inc., 192 F.3d 1353, 1359-1360 (Fed. Cir. 1999). While the recent Supreme Court decision of KSR International Co. v. Teleflex Inc. et al., 127 S. Ct. 1727, 550 U.S. ____ (2007) has held that this motivation does not necessarily have to be explicit in the cited prior reference itself, it still must be established by the movant (Examiner).

This reason or suggestion for motivation to combine prior art references may be found either explicitly or implicitly: (1) in the prior art references themselves; (2) in the knowledge of those of ordinary skill in the art that certain references, or disclosures in those references, are of special interest or importance in the field; or (3) from the nature of the problem to be solved, leading inventors to look to references relating to possible solutions to that problem. Rulz v. AB Chance Co., 234 F3 654, 655 (Fed. Cir. 2000). Both the Federal Circuit and the Supreme Court consistently warn that the proper analysis of obviousness should avoid hindsight basis. See Graham. The Examiner or movant must identify a reason why a person of ordinary skill in the art would have combined prior art. Absent this identification or reasoning, a Court must infer that the Examiner, Board, or Trial Court used hindsight. In re Kahm, 441 F3 977,986 (Fed. Cir. 2006).

The temptation to engage in hindsight is especially strong with seemingly simple mechanical inventions. This is because combining prior art references without evidence of such a suggestion, teaching, or motivation simply takes the inventor's disclosure as a blueprint for piecing together the prior art to defeat patentability/the essence of hindsight. In re Dembiczak, 175 F.3d 998, 999 (Fed. Cir. 1999). Therefore, the CAFC has consistently held that a person of ordinary skill in the art must not only have had some motivation to combine the prior art teachings, but some motivation to combine the prior art teachings in the particular manner claimed. In re Kotzab, 217 F.3d 1365, 1371 (Fed. Cir. 2000). In other words, the Examiner must show reasons that the skilled artisan, confronted with the same problems as the inventor and with no knowledge of the claimed invention, would select the elements from the cited prior art references for combination in the matter claimed. In re Rouffet, 149 F.3d 1350, 1357 (Fed. Cir. 1998).

In determining whether or not there is a proper basis for combining or modifying references, or whether the Examiner has improperly engaged in hindsight, the Federal Circuit and its predecessor court, the CCPA, has expressed certain guidelines. The relevant guidelines in this case include:

A. References are not properly combinable or modifiable if their intended function is destroyed.

If a prior reference requires some modification to meet the claimed invention or to be properly combinable with another reference, and such modification or combination destroys the purpose of the invention of the reference, the proposed modification or combination is not proper and the *prima facie* case of obviousness cannot be properly made. In re Gordon, 733 F.2d 900 (Fed. Cir. 1984).

B. All Claim Limitations Must Be Met

After all is said and done, even if the references can be properly combined, all the limitations must be met. In re Fine, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988).

Where claimed limitations are absent or ignored, obviousness is not established.

Thus, the key inquiry to support a rejection by combining references is not merely whether an invention can be cobbled together from discrete components found in the prior art, but whether a person of ordinary skill would have been likely to do so at the time the invention

was made. U.S. v. Adams, Supra. Thus, what the Examiner or fact finder can recreate only after using the patent as a guide cannot be the inquiry. Dann v. Johnston, 1425 U.S. 219 (1976). The Examiner must still identify a reason that would have prompted a person of ordinary skill in the relevant field to combine the elements in the way the claimed invention does. KSR International Co. v. Teleflex Inc. et al., supra.

II. The Present Invention is a Unique Departure from the Prior Art

Applicant's invention is a roofing fabric for convertible automobiles. This unique roofing material combines conventional yarns for the interior fabric, which are normally used in convertibles, with an exterior fabric which heretofore has not been used for convertible tops. The outer fabric layer and interior fabric layer are bonded together by an adhesive waterproofing layer. This outer fabric is primarily formed of a plurality of discrete polymeric coated specialty yarns and a plurality of discrete other non-coated effect yarns.

The outer fabric layer is of a unique construction peculiarly designed to address the problems of durability, cleanability, abrasion resistance, UV resistance, and insulation to sound, while at the time maintaining a real woven appearance that is desirable for the exterior surface of convertible automobiles. Stated otherwise, convertible tops in the past have either suffered from durability, abrasion resistance, and cleanability problems because of the exposed relatively weak yarns, or else, when covered with a PVC or like film, have offered a relatively unsightly appearance. Applicants solved this problem by the combination of the discrete specialty yarns and discrete other effect yarns.

When constructed as described in Applicants' specification with the outer fabric layer, intermediate adhesive waterproofing layer, and the inner fabric layer, the result is a roofing material wherein the outer layer maintains the appearance of a woven fabric which maintains the appearance of a structure of discrete individual yarns and at the same time is more durable and abrasion resistant.

Applicants have amended the claims herein to clarify the multiple layer construction of the roofing fabric with the outer layer formed of discrete yarns which maintain the appearance of a woven fabric.

III. The Prior Art Does Not Suggest the Present Invention.

A. Corry fails to disclose all of the features of the claimed invention.

The Corry reference (U.S. Patent No. 2,942,327) relates to a coated fabric construction that primarily addresses a problem of creating a sufficient bond between a flexible film coating and a fabric surface. Even though the reference discusses the abrasion problem in the environment of either upholstery fabric or fabric for convertible tops, the Corry invention actually deals with creating a good bond between a flexible film coating and a fabric surface. Further, the combination of staple fiber yarns and low twist, generally parallel continuous filament yarns of the type described do not solve the durability and abrasion problem solved by the unique combination of yarns in the present invention. The relevant portion of the Corry reference is found in Col. 3, Line 15 through Col. 4, Line 13, with reference to Figures 4 and 5. The outer fabric there disclosed is a woven fabric construction formed of a combination of (a) continuous filament yarns formed from regenerated cellulose, nylon, polyester, polyamide, or the like, and (b) twisted staple fiber yarns. The continuous filament yarns are woven with the staple yarns so that the continuous filament yarns primarily appear on the surface of the fabric. This solves a cleaning problem, but does not address nor solve the problems of durability and abrasion resistance.

While appearance and cleanability of the fabric is addressed by the Corry patent, the yarns selected by Corry are different and do not result in a durable fabric. Substantially parallel continuous small denier filaments, while making an attractive surface, are not durable and not relatively abrasion resistant. For example, this yarn results in a plurality of very fine rayon, nylon, polyester, or the like filaments (approximately 3 denier according to Col. 4, Line 37) forming the primary surface material of the fabric. See Figure 4.

The Examiner recognizes that Corry fails to teach that (1) the outer fabric layer is formed of substantial amounts of at least 50% by weight polymeric coated specialty yarns and other effect yarns as required by Claim 27, (2) the core yarn of the specialty yarns is selected from the group consisting of polyester, nylon, acrylic, fiberglass, aramids, olefins, and carbon fibers as required by Claim 3, (3) the polymeric coating is selected from the group consisting of polyvinyl chloride, nylon, olefins, thermoplastic olefin elastomers, urethane, EVA, polyester, ionomer, polyphenylene sulfide, polyethersulfone, fluoropolymer, polyethertone and liquid crystal

polymers as required by Claim 6, (4) the coating is polyvinyl chloride and the core yarn is polyester as required by Claim 7, (5) the coated yarn is introduced into the warp alone as required by Claim 11, (6) the coated yarn is introduced into the fill alone as required by Claim 12, or (7) the coated yarn is introduced into both the warp and fill in a pattern alternating with effect yarns as required by Claim 13. In attempting to overcome the substantial deficiencies of Corry, the Examiner has turned to the Schnabel reference.

B. The Schnabel reference fails to cure the deficiencies of Corry, fails to teach or suggest a roofing material formed of discrete fabric layers adhered by an intermediate adhesive waterproofing layer, and fails to teach an outer fabric layer that maintains the appearance of a woven fabric formed of discrete yarns without altering the structure of the individual yarns forming the outer layer.

The Schnabel patent (GB 1 374 223) is a method of producing a flexible thermoplastic sheet having at least one smooth surface of synthetic thermoplastic material in which the synthetic material has been brought to a plasticized state by the effect of heat to form the singular sheet-like structure having reinforcing materials embedded therein the synthetic material. Reinforcing elements, such as filaments consisting of synthetic threads are coated with a synthetic material in an extrusion process. The coated filaments are woven to form a singular flat web of cloth. The cloth web is next heated (to between 120° C and 220° C for polyvinyl chloride, for example) until the coating of synthetic material is converted to a plastic state, at which point exterior pressure is applied to squeeze the faces of the plasticized synthetic material and to consolidate it by compression with adjacent portions of the coating, thus forming an air-tight and waterproof sheet. (See page 1, lines 15, 16 and page 2, lines 38-46)

As a result:

- (a) there are no non-coated effect yarns, as all yarns are coated, then melted;
- (b) to combine the Schnabel coated yarns with non-coated yarns would destroy Schnabel in that it would no longer be waterproof; and
- (c) while it may allegedly be treated in some manner to have a “woven appearance” the integrity of the strands of yarns is not maintained.

IV. The Examiner's Rejection is Without Merit and Should be Withdrawn.

A. Corry and Schnabel Are Not Properly Combinable.

The present invention is directed to convertible top fabrics which address the problems of appearance, weatherability, resistance to abrasion, cleanability, and sound insulation. Stated differently, the goal of the Applicants of the present invention was to provide a fabric that had improved weatherability (UVA resistance and durability), cleanability, abrasion resistance, and insulation to sound, while maintaining a real woven outer appearance, and not a sheet that simulates a “woven-like” appearance.

First of all, while Corry does discuss abrasion resistance, it is achieved by an overlying film coating, not by the yarn selection (see col. 1, lines 57-61). Rather, Corry is primarily interested in obtaining a good bond between flexible vinyl films and synthetic yarn fabrics formed of warp or fill yarns made up of plurality of untwisted monofilament.

As recognized by the Examiner, the embodiment of Corry which is described as being a fabric for convertible tops is shown in Figures 4 and 5 and described in column 3, line 15 through column 4, line 13 as being a sandwich structure in which the outer fabric layer includes a combination of generally parallel, untwisted regenerated cellulose, rayon, and cotton. The fabric is so woven that the outer surface is composed primarily of the parallel untwisted multifilaments of rayon, or other similar continuous filamentary yarn. The problem with parallel continuous filament yarn is that it will have no strength. That is why filamentary yarns are generally twisted. Each of the filaments is only about 3 denier and will not be durable and not abrasion resistant. Further, the remainder of the outer of surface of the fabric is a natural fiber such as cotton, which is not abrasion proof, and has cleanability problems. Therefore, the outer surface of the convertible top without an overlying film, while admittedly having some appearance advantages, as in the present invention, does not address the problems of weatherability, durability, or abrasion resistance at all.

Now the test is whether a person of ordinary skill in the art would be led to replace the parallel continuous multifilament yarns in the outer layer of Corry with the synthetic coated yarns of embedded reinforcing material of Schnabel to achieve a layer of discrete specialty coated yarns and discrete non-coated effect yarns as claimed.

First of all, since Corry is not concerned about the weatherability, cleanability, or abrasion resistance of the outer layer in the embodiment shown in figures 4 and 5, there would be no reason for the person of ordinary skill in the art to look for such a type of yarn. The inventors of the present invention have nowhere claimed that they invented polymeric coated yarns. Such yarns have been available for many years, however, the inventors do claim to be the first to incorporate such yarns discretely along with non-coated effect yarns in a woven outer fabric for convertible tops to improve weatherability, cleanability, and abrasion resistance, while maintaining the appearance of a woven fabric. Thus, in the Figure 4 and 5 embodiment, the problems are apparently ignored.

Secondly, Corry was not looking to improve the cleanability, durability, or abrasion resistance of the outer surface in the embodiment of Figures 4 and 5. Rather, he had already decided that the parallel, continuous, multifilament yarns in the outer surface gave the appearance he wanted. Corry merely added the cotton yarns which would primarily show on the rear, or inner, surface of the fabric to bond better to the vinyl film. To substitute the coated yarns of Schnabel with Corry would actually be moving away from, or destroy the teachings of Corry, because the bonding effect of the cotton would be negated by the melted polymer. As is well known, a combination that teaches away from or destroys the goal of the reference is an improper combination. In re Gordon, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984).

Schnabel, on the other hand, uses synthetic coated threads to weave a fabric, then heats the fabric to a temperature of between 120° C and 220° C to melt the thermoplastic coating, forming a sheet with yarns embedded. With the application of pressure, the plasticized coatings from the threads are consolidated, embedding the reinforcing threads and rendering an impermeable dense “skin” of synthetic material in the middle of which are embedded the reinforcing threads.

The Examiner equates other filaments having a reduced degree of hardness (presumably the Examiner means filaments having coatings of a different hardness (Col. 2, Lines 85-110) with Applicants' effect yarns. As amended, Applicants' Claim 27, however, clarifies that the effect yarns (further defined in Claim 9) are non-coated yarns. Applicants agree with the Examiner that Schnabel only discusses the use of coated yarns; indeed, it would appear that the success of Schnabel's embedding method would be reliant on all coated yarns. Given this

distinction in view of the revision to Claim 27, Schnabel lacks Applicants's effect yarns and cannot be interpreted to equate to Applicants' requirement of "at least 50% by weight of discrete polymeric coated and other non-coated effect yarns".

Since the method of Schnabel results in a dense skin, singular, impermeable sheet, combining Schnabel with Corry, or modifying Corry with Schnabel, would, again, not only defeat Corry's coated fabric construction, but would be totally unnecessary. There is no motivation for Corry to include another impermeable sheet in his construction since he already has a waterproof sheet, and Schnabel similarly has no need for a separate waterproofing layer, and thus a multi-layer construction, since his construction is already impermeable. This again would actually be moving away from the teachings of Corry and/or Schnabel since the teachings of these two references are to so distinctly different concepts. As is well known, a combination that destroys the intent or purpose of the primary reference is an improper combination. In re Gordon, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984).

Lastly, while Schnabel purports in one embodiment to create a structure having a woven effect on one or both faces, even though he does not describe how, he does not and cannot provide a multi-layer construction having an outer layer in which the woven coated specialty yarns and non-coated effect yarns are unaltered when combined with an inner conventional fabric layer by an intermediate adhesive waterproof layer.

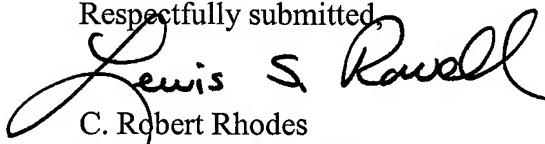
Thus, the Examiner has not and cannot establish a *prima facie* case of obviousness for at least three reasons:

- (1) The proposed combination of Corry and Schnabel is not reasonably justified. Using the Examiner's modification of Corry by the Schnabel teaching would result in a thermoplastic sheet for a convertible top.
- (2) To modify Corry as suggested by the Examiner would destroy Corry to the extent that Corry would no longer have the 4 x 1 woven fabric appearance and the bonding effect of Corry's cotton yarns would be negated by the polymer material that would mask those yarns after melting and compression.
- (3) To modify Corry with Schnabel would still not provide a fabric formed of at least 50% discrete polymeric coated specialty yarns and other discrete effect yarns. Rather, the result would be a sheet with cotton yarns embedded therein.

Based upon the amendments to the pending claims and the above Remarks, Applicants respectfully submit that the application is now in condition for an immediate allowance, and such action is requested. If any matter remains unresolved, Applicants' counsel would appreciate the courtesy of a telephone call to resolve the matter.

Applicant respectfully submits that the pending application is now in condition for an immediate allowance with Claims 3, 6, 7, 9, 11-13, and 27, and such action is requested. If any matter remains unresolved, Applicant's counsel would appreciate the courtesy of a telephone call to resolve the matter.

Respectfully submitted,



C. Robert Rhodes

Registration No. 24,200

Lewis S. Rowell

Registration No. 45,469

Womble Carlyle Sandridge & Rice, PLLC

300 North Greene Street, Suite 1900

Greensboro, NC 27401

336-574-8040

Date: August 20, 2007